

# uponor

UPONOR  
UNDERFLOOR HEATING  
UPONOR CONTROL SYSTEM  
RADIO



Uponor Control System  
Radio

Installation Manual

Controller and Thermostats, UK, IRL

In keeping with our policy of continuous improvement and development,  
Uponor reserves the right to change specifications without prior notice.

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# 1. General recommendations and explanations

## Safety measures

- Read and follow the instructions.
- Installation must be performed by a qualified person according to local regulations.
- It is prohibited to make changes or modifications not specified in this manual.
- Power must be switched off when carrying out the wiring.
- We decline any responsibility concerning damages and breakdowns that may result from the non-observance of these instructions!

## Symbols used in this manual

### WARNING



Risk of bodily injuries or squeezing.  
Non observance may harm health or cause damage to product components.



### CAUTION

Important note on functionality. Non observance of this note may cause malfunctions.



### Information.

Important operating advice and information.



See another document.



See another page in the manual.



Extended function with the interface.

→ Result of an action.

> Press button.

● LED off.

☀ LED on.

⦿ LED blinks.

⚡ LED flickers.

## Power supply

### WARNING



- The Uponor Control System uses a 230VAC 50Hz power supply.
- In case of emergency, immediately disconnect the plug from the 230V mains.
- Do not use water to clean the Uponor Control System.
- Do not expose the Uponor Control System to flammable vapors or gases.

## Limitations for radio waves

The Uponor Control System uses radio waves. The frequency used is reserved for similar applications and the chances of interference from other radio sources is very low. However, in some rare special cases, it may not be possible to establish a perfect communication. The transmission range is sufficient for most applications, but each building has different obstacles affecting communication and maximum transmission distance. If communication trouble exists, Uponor can support the system with accessories, such as repeaters, for solving the exceptional problems.



## Technical constraints

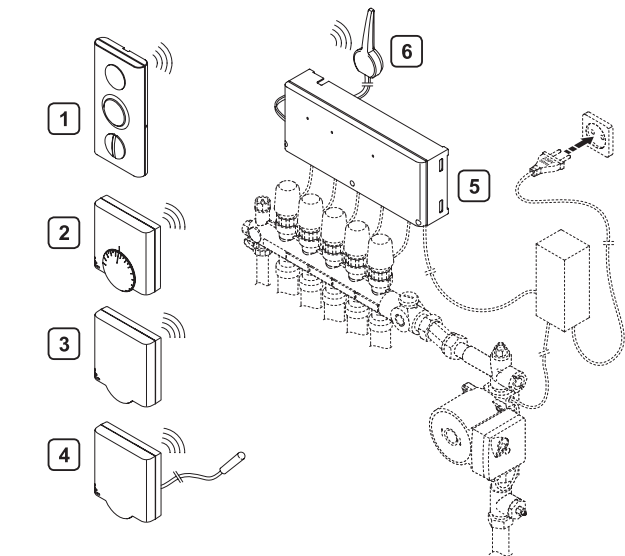


- Keep installation/data cables away from power cables > 50V to avoid interference.
- The electrical circuits of the boiler and the pump must be protected by a maximum 6A circuit-breaker.


## 2. The Uponor Control System

The Uponor Control System is a complete management for underfloor heating systems. Comfort, user-friendliness and temperature control for each room can be combined through the different components. The controller Installation and Operation Manual allow an optimum installation and setting. An ergonomic interface can be added in order to facilitate the setting and optimize the management. If your system is equipped with an interface, see interface Installation and Operation Manual.

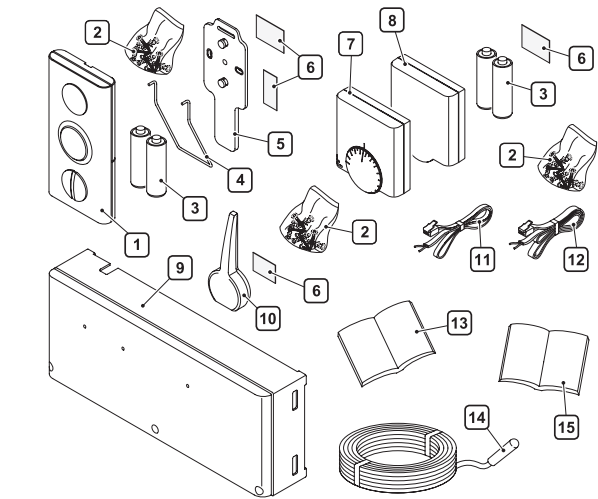
### 2.1 Example of a system



Mark	Description
1	Thermostat Display T-75
2	Thermostat T-55
3	Thermostat Public T-53: This thermostats can be used as a room thermostat or for a floor sensor.
4	Thermostat Public T-53 with floor sensor
5	Controller C-55
6	Antenna for Controller C-55

 The floor sensor can be used for maximum or minimum limitation of the floor temperature, regardless of the room temperature.

### 2.2 Uponor Control System components



Uponor Control System designation	Item	Description
Uponor Thermostat Display T-75	1	Thermostat Display T-75
	2	Fastening screws
	3	Batteries
Uponor Thermostat Mounting Kit for T-75	4	Table stand
	5	Wall bracket
	2	Fastening screws
Uponor Thermostat T-55	6	Adhesive strip
	7	Thermostat T-55
	2 6	Bag with fastening screws and adhesive strip
Uponor Thermostat Public T-53	3	Batteries
	8	Thermostat Public T-53
	2 6	Bag with fastening screws and adhesive strip
Uponor Controller C-55	3	Batteries
	9	Controller C-55
	2 6	Bag with fastening screws and adhesive strip
Uponor Floor sensor	10	Antenna
	11	Connection cable for antenna, length 0.3 m
	12	Connection cable for antenna, length 3 m
	13	Installation and Operation Manual
	14	Floor sensor
	15	Instruction (for floor sensor)

## 3. Installation

### Installation steps

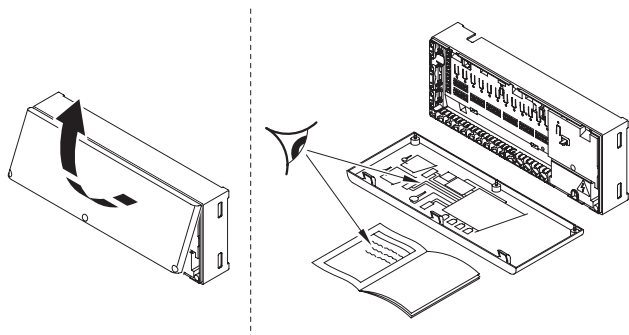
Uponor recommends that you follow the steps described below to guarantee the best possible installation:

	Description
3.1	Preparation before installation
3.2	Installation of controller and antenna
3.3	Connection of components to controller (Actuators, pump, H/C relay)
3.4	Registrations and mounting of room thermostats
3.5	Registrations and mounting of external sensor thermostats
3.6	Testing the communication between the thermostats and the controller
3.7	Finishing the installation

### 3.1 Preparation before installation

Before beginning the installation:

- Verify the contents of the package with the list shown in Section 2 to make sure you have all the necessary components;
- Check whether a floor sensor has been mounted;
- Study the wiring diagram in the fold-out or inside the controller cover.



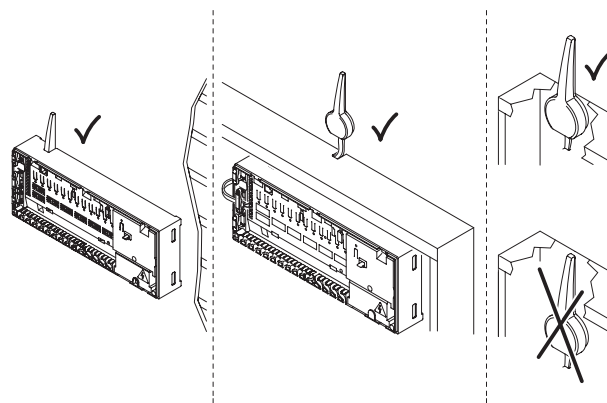
Study the drawings of the underfloor heating system. If the locations of the controllers and thermostats are not specified, determine the best positions:

- A controller with antenna should be installed close to each manifold;
- A power outlet is required for the connection of the controller to the mains;
- The mounting locations for the Uponor Control System must be protected from running and dripping water;
- Use one thermostat for every room with underfloor heating.

### 3.2 Installation of the components

#### 3.2.1 Mounting the antenna

Decide if the antenna are to be mounted on the back of the controller or on the wall.

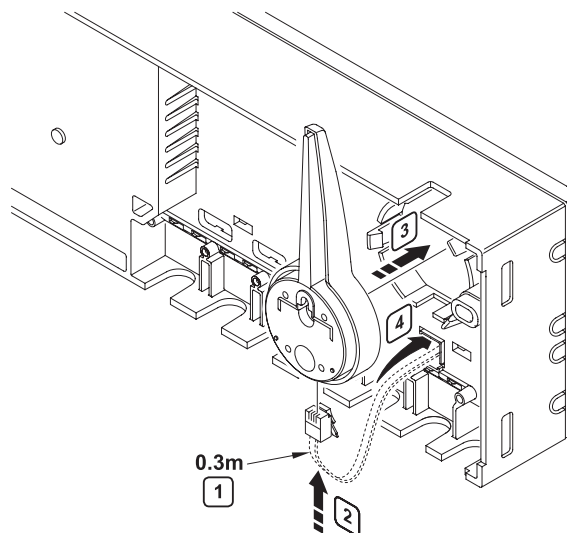


Metal cabinet



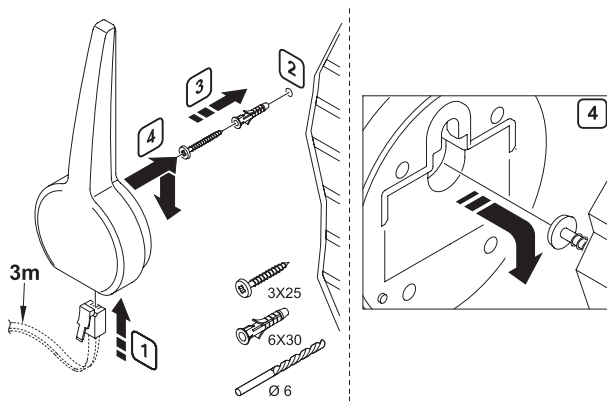
If the controller is installed inside a metal cabinet, the end of the antenna or the whole antenna must be outside the cabinet.

#### Clip the antenna at the back of a controller



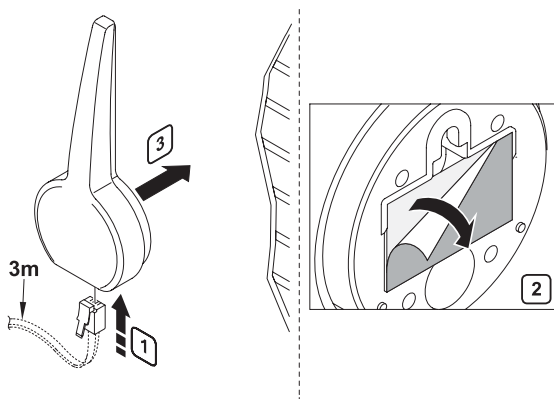
- 1 Use 0.3 m antenna cable
  - 2 Connect the RJ 9 connector into the antenna
  - 3 Clip the antenna into the controller
  - 4 Run the cable of the antenna into the hole of the controller
- Connect to terminals 9 and 10

### Screwing the antenna onto a wall



- 1 Connect the RJ 9 connector into the antenna
- 2 Drill the wall (Ø6 mm)
- 3 Fix anchor and screw on the wall  
Let the screw protrude from the wall (3 mm)
- 4 Hang the antenna on the screw

### Sticking the antenna onto a wall



Use the double sided adhesive strip to fix the antenna on a smooth wall such as glazed ceramic tiles.

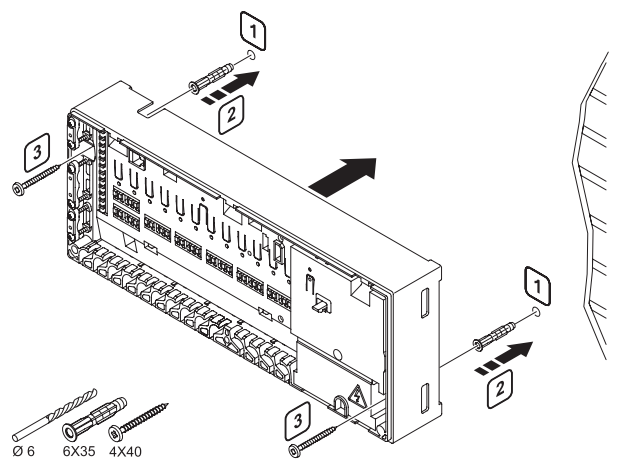
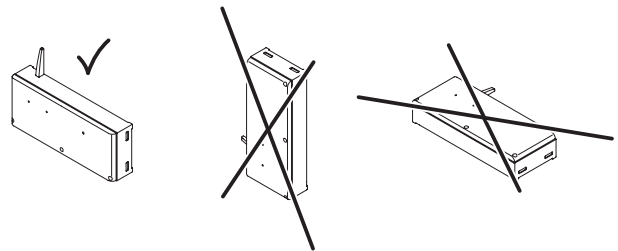
- 1 Connect the RJ 9 connector into the antenna
- 2 Stick the antenna on the wall

### 3.2.2 Mounting the controller

- Position the controller just above the manifold. Check position of 230V socket.
- Check that the cover of the controller can easily be removed.
- Check that the connectors and switches are easily accessible.



The controller has to be mounted horizontally. There is a risk for overheating if the controller is mounted vertically or on a horizontal surface.



- 1 Drill the wall (Ø6 mm)
- 2 Press the anchor into the hole
- 3 Attach the controller to the wall with screws

### 3.3 Connections



See wiring diagram in the fold-out.

#### 3.3.1 Controller description

Mark	Description
1	Terminal block for connection of antenna and options
2	Interface RJ 9 connector
3	Push-button and LED from 01 to 12 for channel registration
4	Test push-button and LED
5	Quick connectors for the actuators
6	Socket for the connection of the data stick
7	Power LED
8	230VAC 50Hz compartment

#### 3.3.2 Connecting the antenna to the controller

(Only if the antenna is mounted on the wall)  
Remove plastic part at the cable entrance on the side of the controller. Pull cable under the strain release and connect to terminals 09 and 10 (symbol  $\nabla$ , non polarized).

#### 3.3.3 Connecting the actuators to the controller



Identify what room each loop on the manifold is supplying and decide which channel it should be connected to.

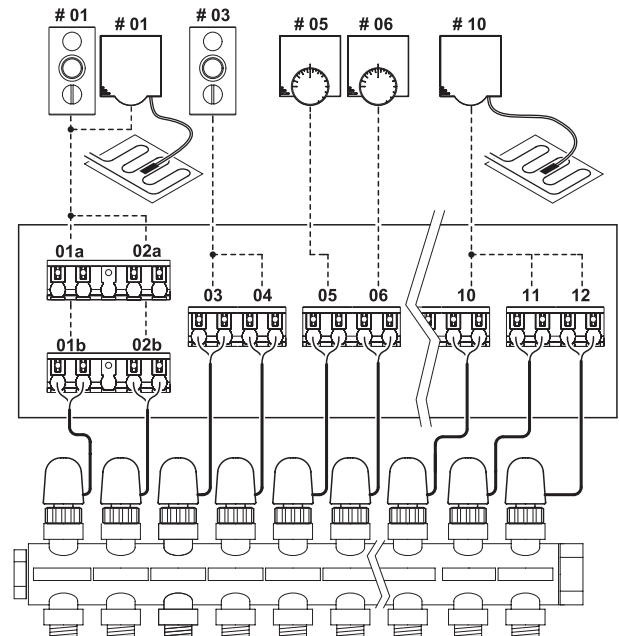
#### Example installation:



Each thermostat can control any desired channel, one or several. It simplifies installation and maintenance if actuators controlled by the same thermostat are wired to channels in sequence.

#### Correct installation:

Thermostat Display #01 controls channels 01a,01b and 02a,02b,  
External sensor thermostat #01 communicates the floor temperature to the controller,  
Thermostat Display #03 controls channels 03 and 04.  
...



----- : Radio / Program connection

———— : Cable connection

#### 3.3.4 Installation of the options



Systems with interface, please see the interface Manual.

#### WARNING



**Mains supply 230VAC 50Hz**  
**Disconnect the 230V mains before installing or changing the device wiring.**



Using an interface with this system allows increased management possibilities.



## Controller heating / cooling input

### WARNING



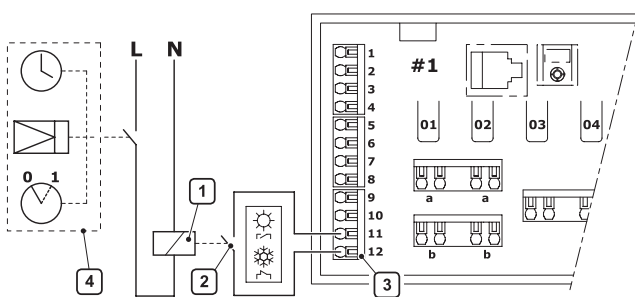
Do not apply voltage to the controller heating / cooling input. Damage to the Uponor Control System will occur.

Should your system include a cooling unit, it is possible to manage the Uponor Control System with the help of a heating / cooling switch input.

The contact may be operated in different ways: timer, ancillary control system, 2 position switch.

The heating / cooling input operates with the connection of a dry contact.

- When the contact of the relay is open, the system is in heating mode.
- When the contact of the relay is closed, the system is in cooling mode.



- 1 Heating / cooling relay
- 2 Heating / cooling contact
- 3 Controller heating / cooling input (potential free dry contact)
- 4 Example of different type of heating / cooling relay input

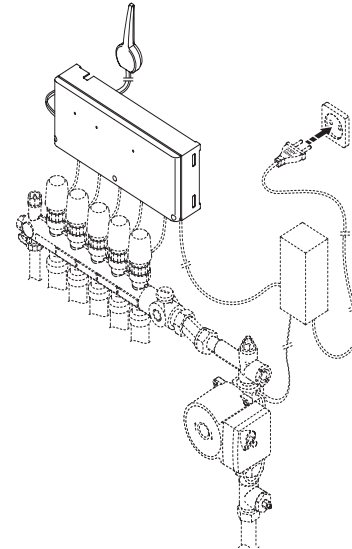


See the heating / cooling relay documentation.

## Circulation pump relay

The Uponor Control System can operate a circulation pump on heating/cooling demand. The controlled use of a circulation pump improves the efficiency and responsiveness of the underfloor heating.

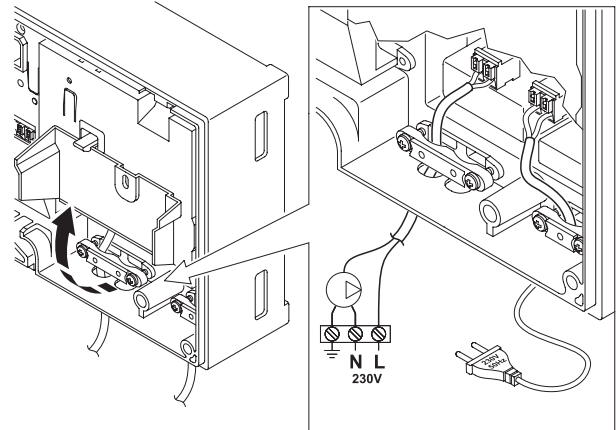
Example of an installation:



### WARNING

See the circulation pump supplier documentation before performing the connection.

The controller controls the circulation pump via connection on terminal block (dry contact).

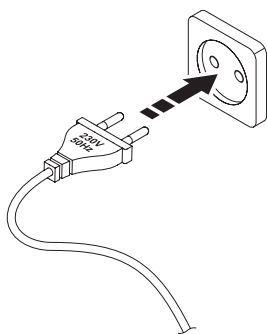


- 1 Ensure the power is disconnected
- 2 Open 230V compartment and fix cover to hanger
- 3 Connect "L" wire from/to pump via relay
- 4 Close 230V compartment



The electrical circuits of the pump must be protected by a maximum 6A circuit-breaker.

### 3.3.5 Connecting the controller to the mains

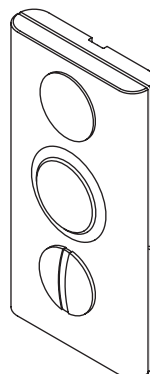


- 1 Check that the wiring is complete (Actuators, Antenna)
- 2 Check that the 230V compartment is closed
- 3 Connect the plug to the mains

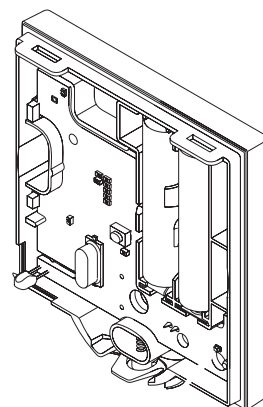
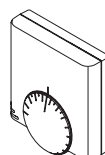
## 3.4 Room thermostats

The Uponor Control System may be controlled with the help of three types of thermostats. These may be used separately or together:

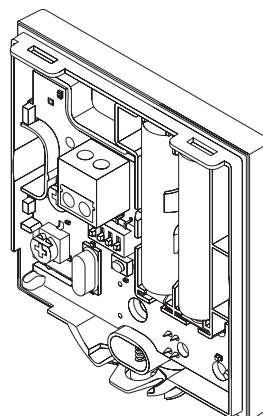
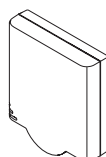
Thermostat Display T-75:



Thermostat T-55:

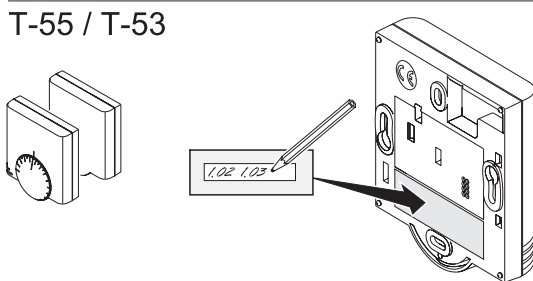
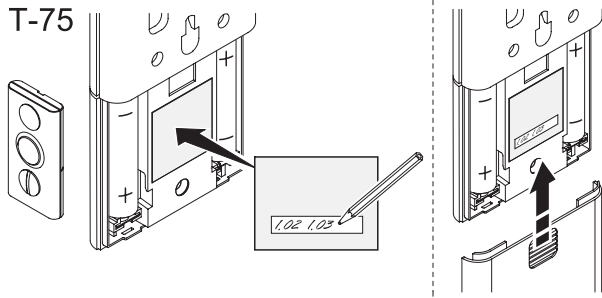


Thermostat Public T-53:



### 3.4.1 Mark room thermostats

- Type of batteries for the thermostats:  
2x Alkaline AAA 1.5V. Respect the polarity.
- Mark the thermostats with the channel numbers they are to control e.g. 02, 03. For a system with an interface and several controllers the ID of the controller has to be added e.g. 1.02, 1.03, 2.02, 2.03.



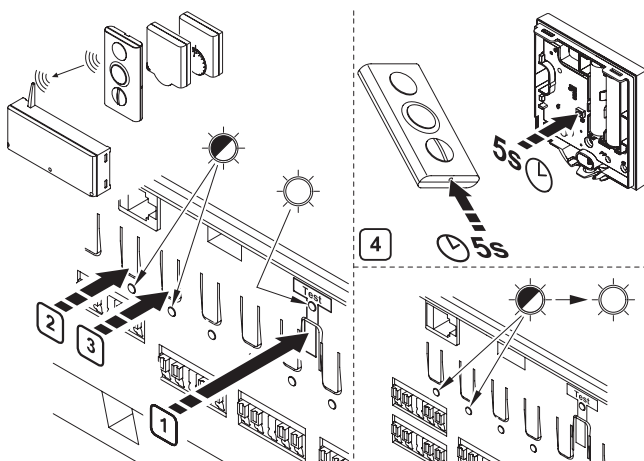
### 3.4.2 Insert batteries



See: controller Operation Manual

### 3.4.3 Register room thermostats

Example of registration: thermostat placed in a room, with 3 loops connected to channels 02 and 03.



1 Press the Test push-button

→ The Test LED lights up ☀.

2 3 Press the push-buttons of channels 02 and 03

→ The LED of channels 02 and 03 flash ☀.

Using a point, press the registration button of the thermostat for at least 5 seconds.

For Thermostat Display T-75:

- 4
- The temperature is replaced by 2 lines
  - When the temperature appears again the button can be released

For Thermostat T-55 and Thermostat Public T-53:

- The LED of thermostat blinks one time only

If registration is successful the LEDs of channels 02

→ and 03 switches on after 10 s ☀.

If channel registration fails (the channel LEDs continues to flash or switch off), follow steps 2 to 4 once more.

5 Register all room thermostats

6 Press Test push-button to end the registration process

→ The Test LED switch off. ●

LED	LED status
☀	LED on
☀	LED flash
●	LED off



To cancel registration of a channel and to reset the controller: see: "3.9 Resetting", page: 17.

Wrong registration of the channels will cause bad temperature control.

### Room with floor sensor



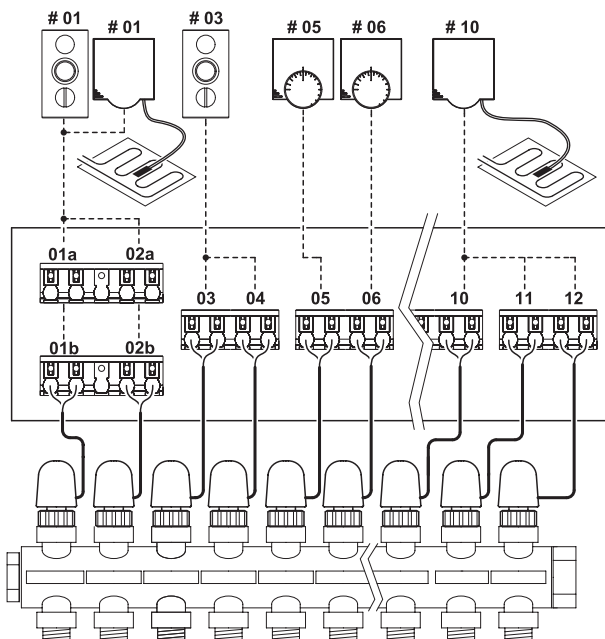
The floor sensor has to be connected to a Thermostat Public T-53. This thermostat has to be registered to the same channel as the room thermostat, but can be mounted elsewhere. The room thermostat must be registered to the controller before the sensor thermostat. See: "3.5 External sensor thermostats"

Example of installation:

Thermostat Display #01 controls channels 01a,01b and 02a,02b,

External sensor thermostat #01 communicates the floor temperature to the controller,  
Thermostat Display #03 controls channels 03 and 04.

...



The Thermostat Display T-75 #01 controls the room temperature.

The Thermostat Public T-53 #01 has been added in order to provide the room with a floor sensor.



It is possible to display the measured floor temperature if your system is fitted with an interface.

### 3.4.4 Mount the room thermostats

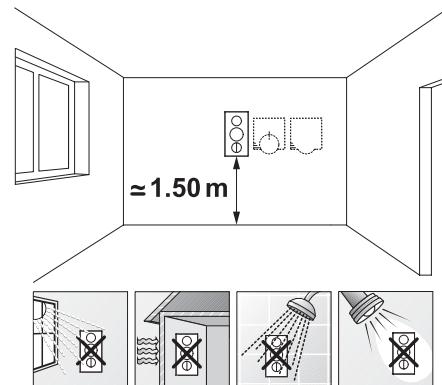


If no external sensors are used, go to "3.4.13 Close the thermostats".

#### 3.4.4.1 Location of a thermostat

(For all thermostats)

- On an indoor wall.
- 1.5 m to 1.8 m from the floor.
- Away from any source of humidity.
- Away from any source of heat (television, electronic equipment, fireplace...).
- Away from direct solar sunshine.
- Away from direct water splashes.



Uponor Wall frame can be used to hide marks on the wall or the box if needed.

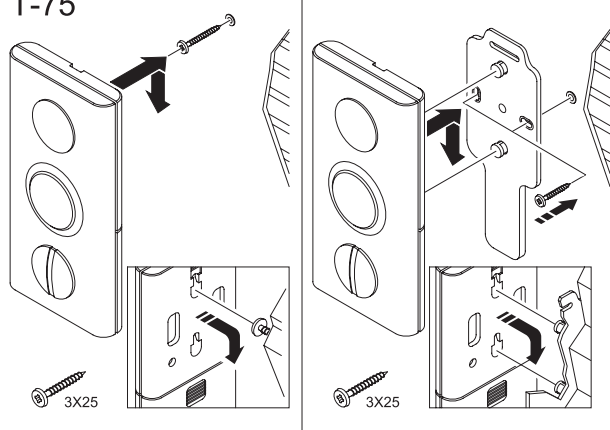
#### 3.4.4.2 Thermostat fixation

There are various solutions to fix the thermostat :

- Fixing on the wall using a screw;
- Fixing on the wall using the bracket (option);
- Using the thermostat table stand (option).

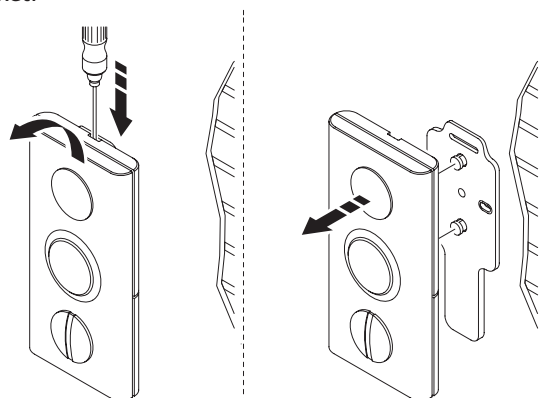
## Thermostat Display T-75

T-75

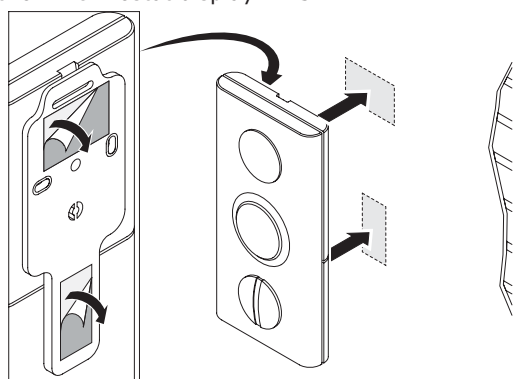


Let the screws protrude 3 mm from the wall.  
or  
Fix the bracket on the wall (option).  
Hang the thermostat on the screw or on the bracket.

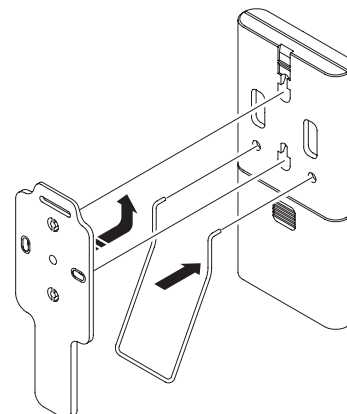
Removing the Thermostat Display T-75 from the optional bracket.



Sticking onto a smooth wall:  
Use the double sided adhesive strip to fix the thermostat on a smooth wall such as glazed ceramic tiles. Use optional bracket for Thermostat display T-75.

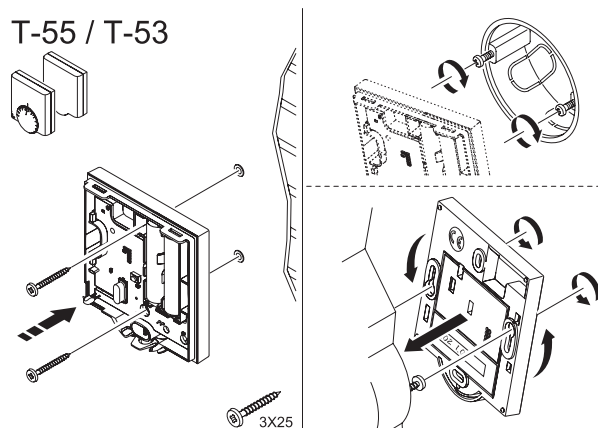


Installation using the thermostat table stand (option):  
Insert the metal stand in the appropriate holes at the back of the thermostat.  
Fix the bracket on the thermostat to lock in place the table stand.



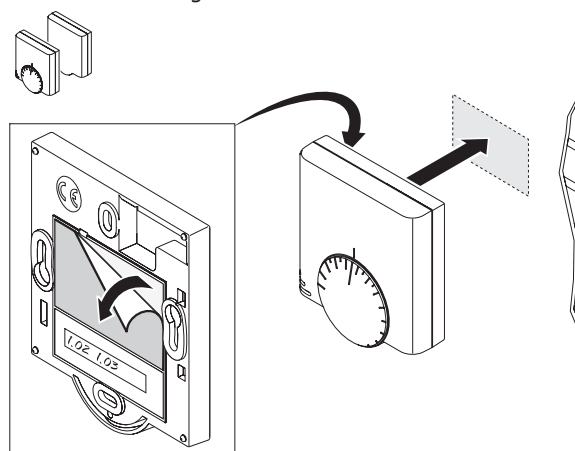
## Thermostat T-55 and Thermostat Public T-53

T-55 / T-53



Screw the thermostat on the wall or/and on the box.

Sticking onto a smooth wall:  
Use the double sided adhesive strip to fix the thermostat on a smooth wall such as glazed ceramic tiles.



### 3.4.5 Thermostat setup



See Operation Manual for thermostat min/max and room temperature settings.



For more information on external sensor settings: See: "3.5 External sensor thermostats", page: 14.

### 3.4.6 Mark the external sensor thermostats



See: "3.4.1 Mark room thermostats", page: 11.

### 3.4.7 Insert batteries



See: controller Operation Manual.

### 3.4.8 Connect the sensor and put switch on right position



See: "3.5 External sensor thermostats", page: 14.

### 3.4.9 Register external sensor thermostats



See: "3.4.3 Register room thermostats", page: 11.

### 3.4.10 Cancelling the registration of a channel



See: "3.9 Resetting", page: 17.

### 3.4.11 Mount external sensor thermostats



See: "3.5 External sensor thermostats", page: 14.

### 3.4.12 Set min and max temperature for floor sensor



See: "3.5.4 Floor sensor setting", page: 15.

### 3.4.13 Close the thermostats



See: controller Operation Manual, page: 10.

### 3.4.14 Carry out communication test



See: "3.6 Testing the communication between the thermostats and the controller", page: 16.

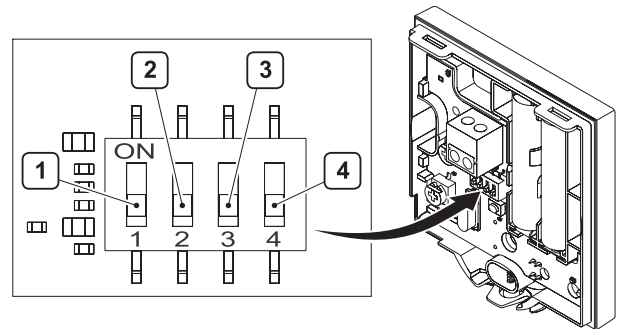
## 3.5 External sensor thermostats

### 3.5.1 Introduction

The Thermostat Public T-53 allows a floor or outdoor sensor to be fitted to the system.

#### Configuration switches

The Thermostat Public T-53 has a terminal to permit the connection of different type of sensors. The switches has to be set according to the type of sensor used.



1 Floor sensor

2 Outdoor sensor

3 (No used)

4 (No used)



Only one of the four switches must be on. When the thermostat is used as a room thermostat all switches should be off. If more than one switch is on: the LED flickers. It stops flashing when only one switch is on, or none at all.

### 3.5.2 Registration and marking

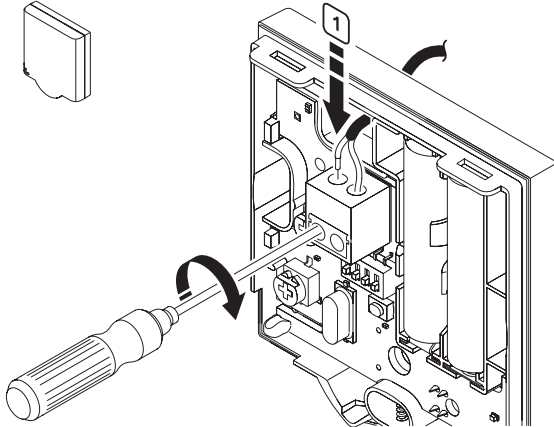


The registration procedure for a Thermostat Public T-53 fitted with a floor or outdoor sensor is similar as that followed for room thermostats. See: "3.4.3 Register room thermostats", page: 11.



Marking the Thermostat Public T-53 is carried out in the same way as with the room thermostat, but add information floor or outdoor. See: "3.4.6 Mark the external sensor thermostats", page 14.

### 3.5.3 Wiring



- 1 Connect cable from the floor or outdoor sensor (non-polarized)

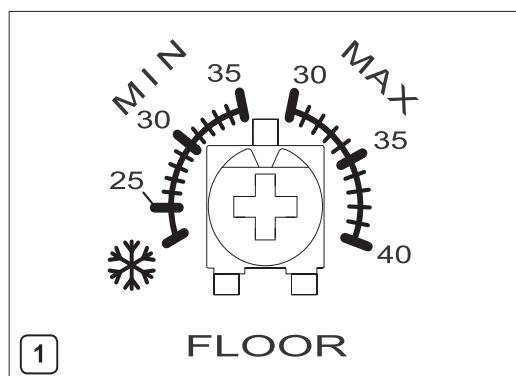
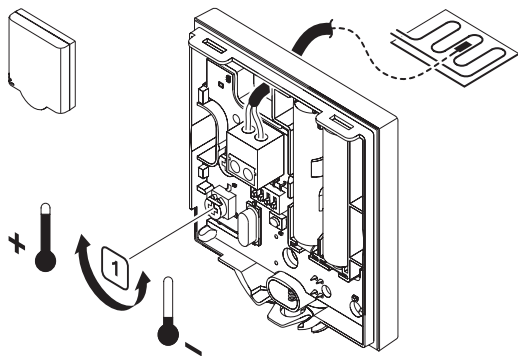
### 3.5.4 Floor sensor setting

#### Floor sensor

The limitation of the floor temperature is adjusted with a potentiometer.

The temperature is set on the minimum or the maximum range of the potentiometer. So the Thermostat Public T-53 allows to have a minimum or a maximum floor limitation. The Thermostat Public T-53 sends the external sensor values to the controller:

- The floor temperature.
- The minimum or the maximum limitation temperature.



- 1 Select the required temperature with the potentiometer



It is possible to display the measured floor temperature if your system is fitted with an interface.

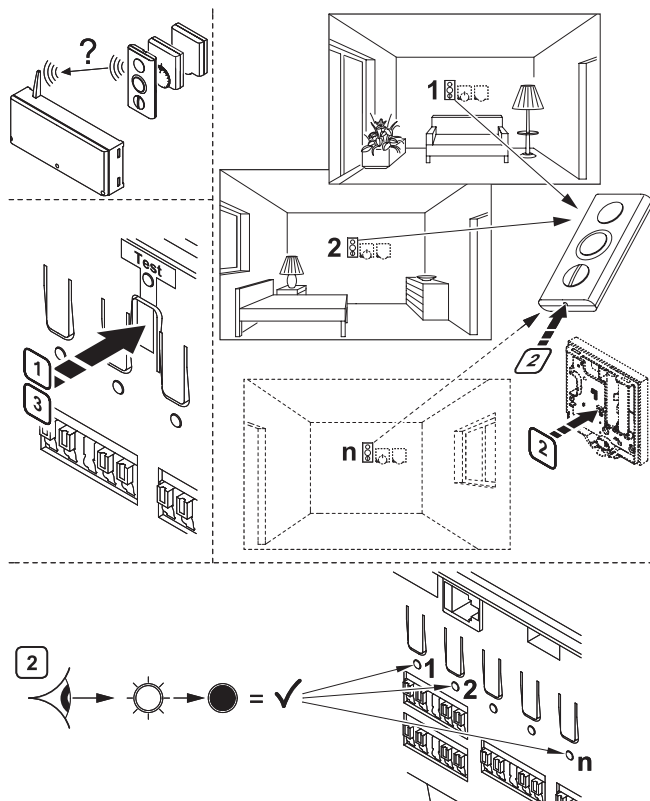
### 3.5.5 Finishing the registration of the thermostats



The procedure for completing the registration of a Thermostat Public T-53 fitted with a floor or outdoor sensor is the same as that followed for room thermostats. See: "3.4.3 Register room thermostats", page 11.

## 3.6 Testing the communication between the thermostats and the controller

### 3.6.1 Testing the communication between the room thermostats and the controller



**1** Press the Test push-button

→ The Test and channel LEDs with registered thermostats light up ☀

**2** Using a point, **briefly** press the registration button of the thermostat

- Communication OK -> LED for the channels registered to the thermostat switch off
- NO Communication -> LED for the channels registered to the thermostat stay on

See: "4. Troubleshooting", page: 18

**3** To exit the Test mode, press the Test push-button



Alternative: Thermostat Display T-75:

Use the +/- keys of the thermostat to switch between high and low temperatures and make sure that the LED of the channel continues changing.



Alternative: Thermostat T-55:

Use the control dial of the thermostat to switch between high and low temperatures and make sure that the LED of the channel continues changing.

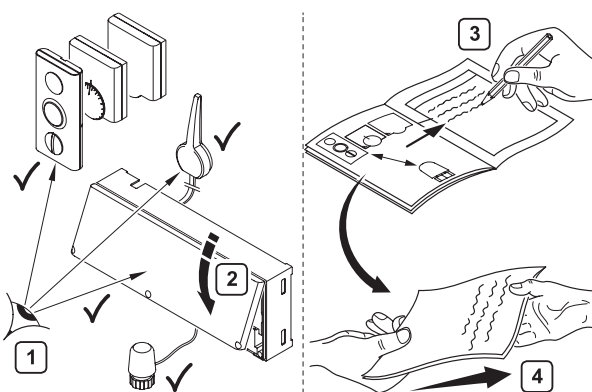
### 3.6.2 Testing the communication between the external sensor thermostats and the controller

The procedure for testing a Thermostat Public T-53 fitted with an outdoor sensor is the same as that described under "3.6.1 Testing the communication between the room thermostats and the controller".



Where two thermostats are connected to the same channel, the procedure described under "3.6.1 Testing the communication between the room thermostats and the controller" must be carried out fully and separately for each thermostat.

## 3.7 Finishing the installation



Make a complete check up of the installation :

**1**

- Verify that the antenna is correctly mounted
- Check if the thermostats are powered

**2**

Close the cover of the controller  
Close the thermostat covers where necessary

**3**

**Fill in the "Installation report" on the centre pages of booklet**

**4**

Give the manual and all information about the system to the end user

## 3.8 Actuators test

**1**

Press the button of the selected channel

- The LED lights up: the actuator is powered (time for actuator opening is ~ 5 min).
- The LED does not light up.

See: "4. Troubleshooting", page: 18.

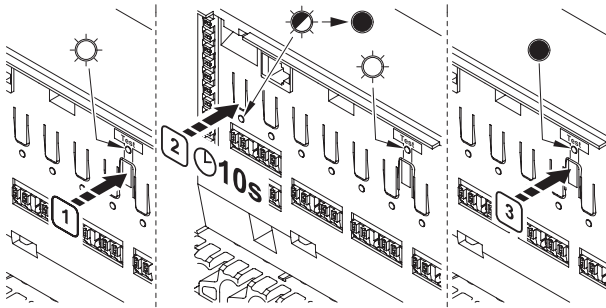
**2**

Press the Test button twice to end the actuator test (or wait 10 min)



## 3.9 Resetting

### 3.9.1 Cancelling the registration of a channel



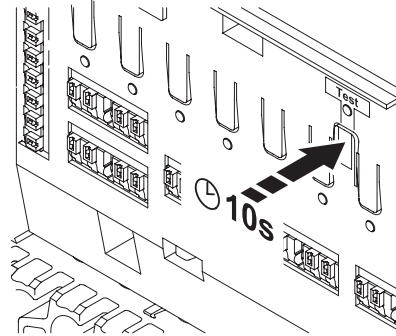
- 1** Press the Test push-button  
→ The Test and channel LEDs with registered thermostats light up ☀.
- 2** Press the push-button of the channel that is to be cancelled for 10 s  
→ The LED of the channel cancelled flashes ☀ for 2 s then switches off ●.
- 3** Press the Test push-button to leave registration mode  
→ The Test LED switches off ●.



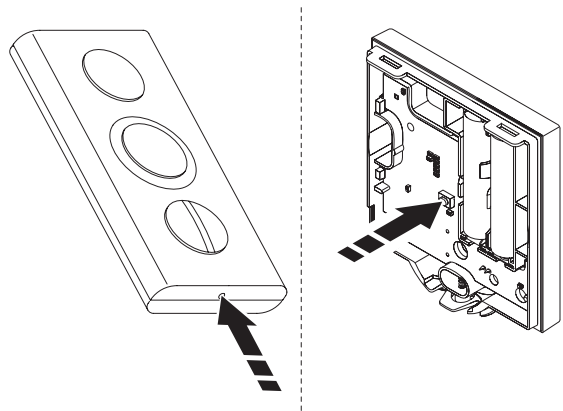
In order to register a different thermostat to a channel, you first have to cancel the existing, not desired registration of this thermostat.

### 3.9.2 Resetting the system

If there are problems with thermostat linking, thermostats mixed up, bad channel registration, etc, the system can be reset.



- For the controller, press the Test button for 10 s. The Test LED flashes for at least 2 s, then all LED go off (except the POWER LED). All parameters are erased. New installation / registration after reset is necessary.



- Pressing briefly the reset buttons is sufficient for the thermostats. New installation / registration after reset is not necessary.

## 4. Troubleshooting

### **Normal system operating conditions:**

The Power LED of the controller is lit up. All the channel LEDs are off if there is no demand for heating or cooling. The LEDs light up when the corresponding actuators are activated. While on stand-by, waiting for the actuators to be activated, the LEDs flash.

LED of Thermostat T-55 and Thermostat Public T-53:

- LED blinks one time only with each transmission.
- LED blinks twice for low batteries.
- Only for Thermostat Public T-53: LED flickers if several switches are in ON position.

Failure	Causes	Indication	Solution	See
the system does not start	no voltage	power LED off in controller	check that the controller is connected to the mains and that the wiring in the 230V compartment is OK	
	cable breakdown	230V in socket but not in 230V compartment	replace cable and plug	
bad radio reception	<ul style="list-style-type: none"><li>■ antenna mounted inside metal cabinet or too close to other shielding objects</li><li>■ building structure unfavorable for radio transmission</li></ul>	repeated radio alarms	change the location of the antenna (if the problem still is remaining, contact your installer for help checking the radio transmission and test with repeater for radio signals)	

## Technical data

### General

- IP: IP30 (IP: degree of non-accessibility to the active parts of the product and degree of non-accessibility of water)
- Max ambient RH (relative humidity): 95% max at 20°C.

### Thermostat

- CE marking:
- Low Voltage Tests: EN 60730-1\* and EN 60730-2-9\*\*\*
- EMC (Electromagnetic compatibility requirements) Tests: EN 60730-1 and EN 301-489-3
- ERM (Electromagnetic compatibility and radio spectrum Matters) Tests: EN 300 220-3
- Approval and certification:
- - KNX: Konnex approval and certification
- Power supply: 2x Alkaline AAA 1.5V
- Voltage: 2.2 V to 3.6 V
- Operating temperature: 0°C to +45°C
- Storage temperature: 0°C to +55°C
- Radio frequency: 868.3 MHz
- Transmitter Duty Cycle: 1%

### Interface

- CE marking:
- Low Voltage Tests: EN 60730-1 and EN 60730-2-1
- EMC Tests: EN 60730-1
- Power supply: 11VDC ±10% from Controller
- Operating temperature: 0°C to +55°C
- Storage temperature: -20°C to +70°C
- Consumption: 1W max

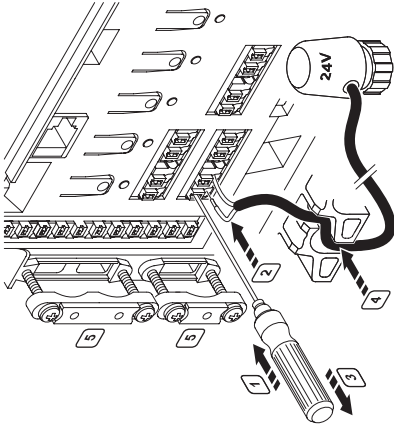
### Antenna

- Power supply: 11VDC ±10% from Controller
- Consumption: << 1W
- Radio Frequency: 868.3 MHz
- Transmitter Duty Cycle: 1%
- Receiver Class: 2

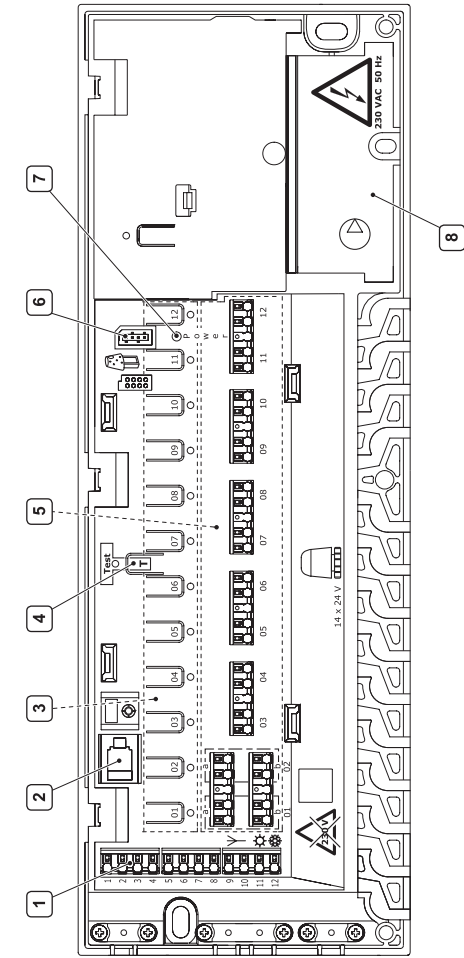
### Controller

- CE marking:
- Low Voltage Tests: EN 60730-1\* and EN 60730-2-1\*\*
- EMC Tests: EN 60730-1 and EN 301-489-3
- ERM Tests: EN 300 220-3
- Power supply: 230VAC +10/-15% 50Hz
- Operating temperature: 0°C to +55°C
- Storage temperature: -20°C to +70°C
- Consumption: 70 W in full charge max
- Pump relay output: 230VAC ±10%/-15%, 250VAC μ 2A max
- Heating/cooling input: Only dry contact
- Valve outputs: 24VDC ±10%, 436 mA max per output 1 and 2
- 24VDC ±10%, 218 mA max per output 3 to 12
- Supply connection: EU - Plug 1 in cable, pre-mounted
- Pump connection: wires 1.5mm<sup>2</sup> max
- Heating/cooling connection: wires 1.5mm<sup>2</sup> max
- Valve connection: wires 1.5mm<sup>2</sup> max
- EN 60730-1 "Automatic electrical control to domestic use"
- \*\* EN 60730-2-1 "Particular Requirements for Electrical Household Appliances"
- \*\*\* EN 60730-2-9 "Specific rules for devices of thermo sensitive control"

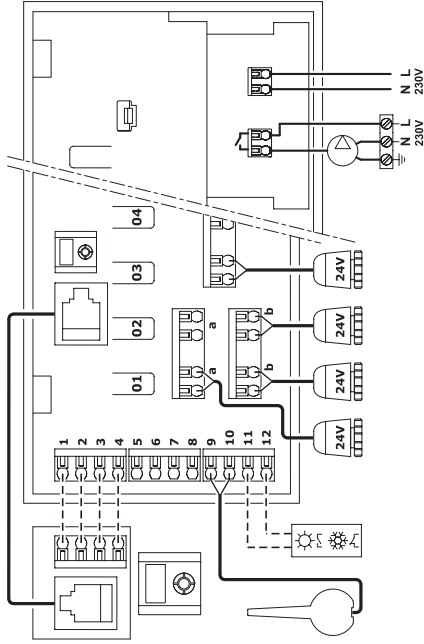
### Use of quick connectors:



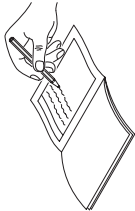
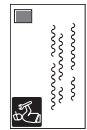
- 1 Press, without turning, with a thin screwdriver on the white button of the terminal to insert or remove a wire
- 2 Insert a wire in the quick connector
- 3 Remove the screwdriver from the white button
- 4 Run the cable in the cable guides to block it in secure
- 5 Screw clamp to secure the cable of antenna or/and extension



Mark	Description
1	Terminal block for connection of antenna and extensions
2	Interface RJ 9 connector
3	Push-button and LED from 01 to 12 for channel registration
4	Test push-button and LED
5	Quick connectors for the actuators
6	Socket for the connection of the data stick
7	Power LED
8	230VAC 50Hz compartment - Pump



Installation report



controller number	Channels					Rooms
# 1						
Floor sensor						
Relay	Yes <input type="checkbox"/>	24V <input type="checkbox"/>	No <input type="checkbox"/>	230V <input type="checkbox"/>		
Pump	Yes <input type="checkbox"/>	No <input type="checkbox"/>				




option:

controller number	Channels					Rooms
# 2						
Floor sensor	Yes <input type="checkbox"/>	No <input type="checkbox"/>				
Pump						
# 3						
Floor sensor	Yes <input type="checkbox"/>	No <input type="checkbox"/>				
Pump						

# uponor

UPONOR  
UNDERFLOOR HEATING  
UPONOR CONTROL SYSTEM  
RADIO



Uponor Control System  
Radio

Operation Manual

Controller and Thermostats, UK, IRL

In keeping with our policy of continuous improvement and development,  
Uponor reserves the right to change specifications without prior notice.

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# 1. General recommendations

## Safety measures

- Read and follow the instructions.
- Installation must be performed by a qualified person according to local regulations.
- Don't make changes in hardware or software, send damaged control devices to Uponor if they need to be repaired.
- It is prohibited to make changes or modifications not specified in this manual.
- Power must be switched off when carrying out the wiring.
- We decline any responsibility concerning damages and breakdowns that may result from the non-observance of these instructions!

## Symbols used in this manual

### WARNING



Risk of bodily injuries or pinching. Non observance may harm health or cause damage to product components.

### CAUTION



Important note on functionality. Non observance of this note may cause malfunctions.

### Information.



Important operating advice and information.



Reference to another document.



Reference to another page in the manual.



Extended function with the interface

→ Result of an action.

> Press button.

## Power supply

### WARNING



- The Uponor Control System uses a 230VAC 50Hz power supply.
- In case of emergency, immediately disconnect the plug from the 230V mains.
- Do not use water to clean the Uponor Control System.
- Do not expose the Uponor Control System to flammable vapors or gases.

## Limitations for radio waves

The Uponor Control System uses radio waves. The frequency used is reserved for similar applications and the chances of interference from other radio sources is very low. However, in some rare special cases, it may not be possible to establish a perfect communication. The transmission range is sufficient for most applications, but each building has different obstacles affecting communication and maximum transmission distance. If communication trouble exists, Uponor can support the system with accessories, such as repeaters, for solving the exceptional problems.



## Technical constraints



- Keep installation/data cables away from power cables > 50V to avoid interference.
- The electrical circuits of the boiler and the pump must be protected by a maximum 6A circuit-breaker.

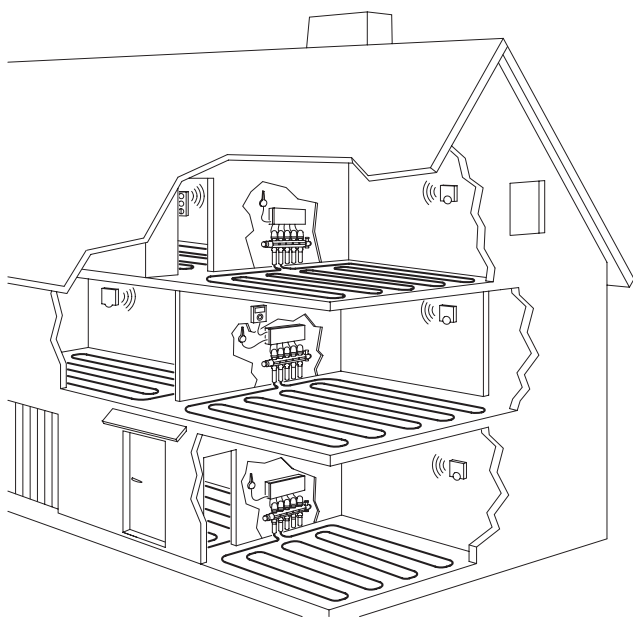


## 2. The Uponor Control System

The Uponor Control System is a complete management for underfloor heating systems. Comfort, user-friendliness and temperature control for each room can be combined through the different components. The controller Installation and Operation Manual allow an optimum installation and setting. An ergonomic interface can be added in order to facilitate the setting and optimize the management. If your system is equipped with an interface, see interface Installation and Operation Manual.

### 2.1 Overview of the system

The controller manages the operation of the actuators, when required by the thermostats following a demand for heating or cooling. It is possible to add an interface to centralize and optimize the management of the system.



The Uponor Control System may be controlled with the help of three types of thermostats. Designed for maximum comfort, the thermostats communicate with the controller through radio waves. They may be used individually or in combination with each other. They are fitted with the same battery type for power supply.

1

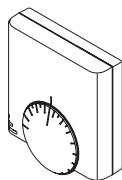
#### Thermostat Display T-75



The thermostat shows the ambient or set temperature on its screen. The thermostat is designed for operative measurement, it is affected by temperature of surrounding surfaces as well as the ambient air temperature.

2

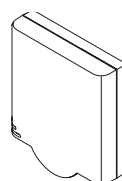
#### Thermostat T-55



The thermostat is easy to use. The temperature settings can be adjusted with the help of a simple dial. The cover may be removed to allow min/max temperatures to be set. The 21°C position is marked.

3

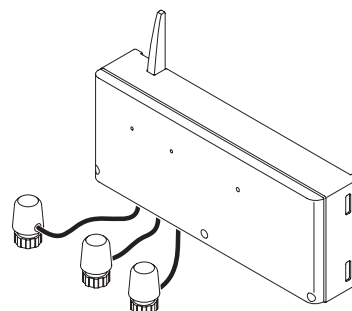
#### Thermostat Public T-53



The thermostat is designed for public location. An alarm is triggered as soon as the cover is opened. The button, switches and potentiometers are all hidden by a cover. The cover may be removed to allow min/max temperatures to be set. An external sensor can be connected.

4

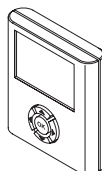
#### Controller with antenna and actuators



The controller drives the actuators according to the setting in the interface and the temperature information received from the thermostats. The controller is typically located near the hydraulic system manifolds.

5

#### Interface I-75 (possible option)




The interface gives you the opportunity to centralize and optimize the management of the system. The interface allows you to display and update easier and faster the operating parameters of the system. The interface also displays the causes of any alarms. It is simple and easy to use.

## 2.2 Operating your installation

The Uponor Control System controls your heating installation according to your needs. You simply have to set the temperatures you wish on the thermostats located in each room.

### Principle of operation:

The temperature setpoint is setting with the thermostats. The order to change the temperature setpoint is controlled by the controller. Is there a temperature deviation the actuator opens or closes the valve, which varies the heat supply.

 For more information on your system, please see to the Installation Report in the fold-out.

### Normal operation

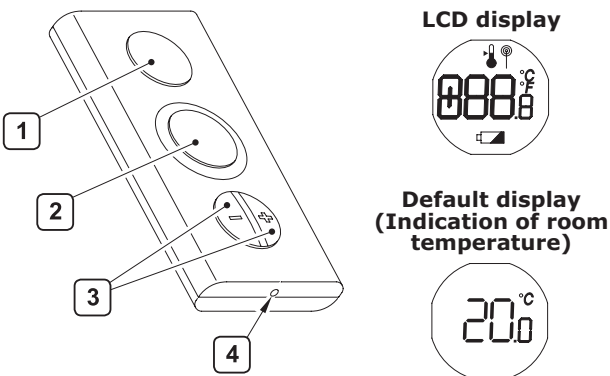
When the system is running in normal mode:

- The Power LED is on (visible on the upper right side of the controller cover),
- In Heating mode, in case of room temperatures lower than the temperatures set on the thermostat, the actuators are open.
- In Cooling mode, in case of room temperatures higher than the temperature set on the thermostat, the actuators are open.


This can be seen in the small windows of the actuators.

## 3. Thermostats

### Thermostat Display T-75





1 LCD display

 Display of temperatures and menus  
Display of the temperature with a precision of 0.1°

 Displayed when setting the temperature set point

 Displayed during radio transmission

 Temperature format for the display

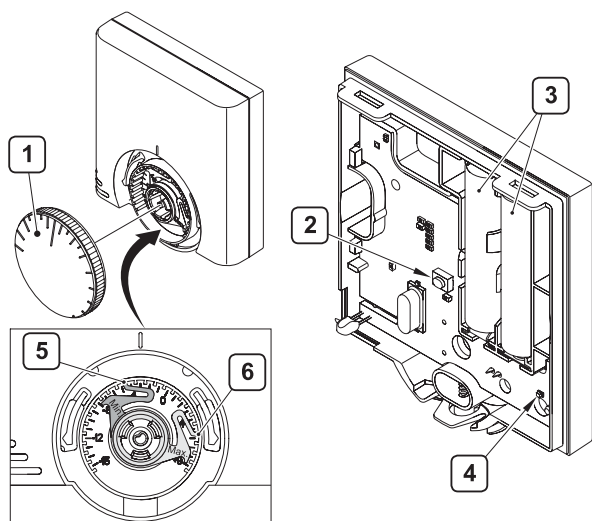
 Low battery indication

2 Temperature sensor for optimum measurement of ambient temperature

3 + and - keys to set the thermostat parameters

4 Thermostat resetting push button

## Thermostat T-55



- 1 Room temperature setpoint dial control

---

- 2 Configuration button

---

- 3 Batteries

---

- 4 Radio transmission LED

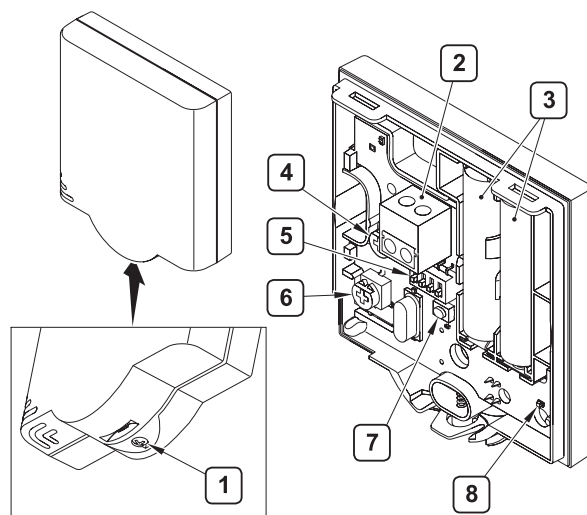
---

- 5 Blue cam to set minimum temperature

---

- 6 Red cam to set maximum temperature

## Thermostat Public T-53



- 1 Screw to open the thermostat

---

- 2 Terminal for external sensor (non-polarized)

---

- 3 Batteries

---

- 4 Set point temperature potentiometer

---

- 5 Configuration switches

---

- 6 Floor sensor potentiometer

---

- 7 Configuration button

---

- 8 Radio transmission LED

### CAUTION



Your thermostats are allocated by your installer to precise rooms and locations. Any change of the location may cause abnormal temperature control.

### 3.1 Changing the temperature format

#### Thermostat Display T-75

- 1 Simultaneously press the + and - keys for 10 s

→ The SEL menu is displayed.



- 2 Press + or - to change the temperature format (°C or °F)

- 3 Wait for 5 s

→ The thermostat returns to the default display.



### 3.2 Changing the temperature setpoint

#### Thermostat Display T-75



You can avail of an energy-saving mode (ECO Mode) if your system is fitted with a Thermostat Display T-75 and an Interface I-75. This ECO Mode may be activated from the interface menu and will allow you to achieve significant energy savings.

- 1 Press the + or - key

→ The set point setting icon and the set point value are displayed.



- 2 Press + or - to change the set point value  
For °C, setting by 0.5°C steps  
For °F, setting by 1°F steps

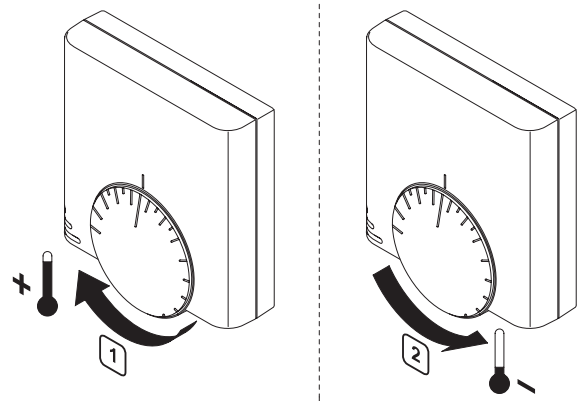
- 3 Wait for 5 s

→ The radio transmission icon is displayed, confirming that the set point has been recorded and sent, and returns to default display.



In order to set the temperature set point to its default value of 22.0°C (72.0°F), briefly press the + and - keys simultaneously.

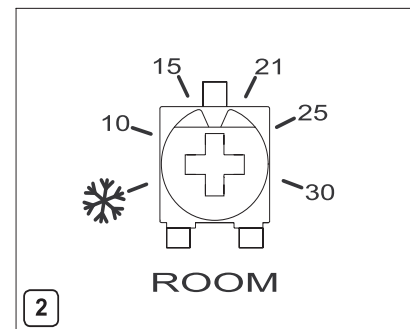
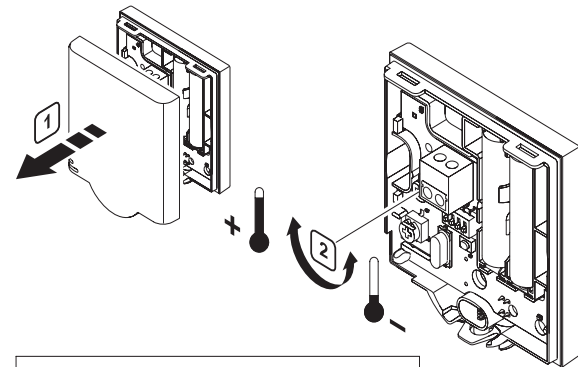
#### Thermostat T-55



- 1 Rotate the dial to get a higher temperature set point

- 2 Rotate the dial counter-clockwise to get a lower temperature set point

#### Thermostat Public T-53



- 1 Open the cover. See: "3.5 Thermostat battery replacement"

- 2 Select the required temperature using the potentiometer

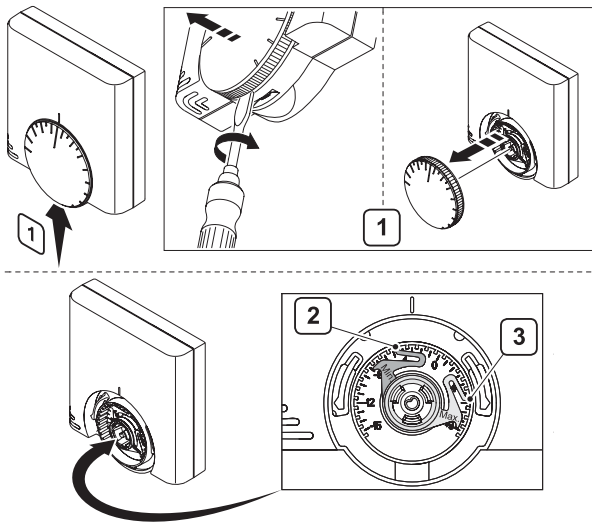
### 3.3 Setting the min and max temperatures

#### Thermostat Display T-75



The minimum and maximum temperatures (5° C and 35° C) of the Thermostat Display T-75 are pre-set. It is however possible to tailor these temperatures to your system if it is equipped with an interface.

#### Thermostat T-55



- 1 Remove the dial with a screwdriver
- 2 Set the desired minimum temperature of the room with the blue cam
- 3 Set the maximum temperature with the red cam



The blue and red cam allow the minimum and maximum set point to be set as a deviation from the usual setpoint.  
Example:

- The usual set point is 21°C
  - The setting of the blue cam is -10°C
  - The setting of the red cam is +5°C
- The temperature range for this room is 11°C to 26°C.

#### Thermostat Public T-53



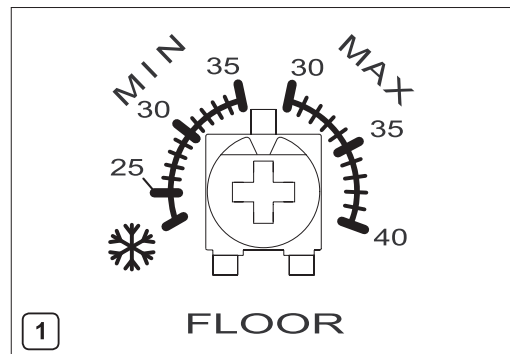
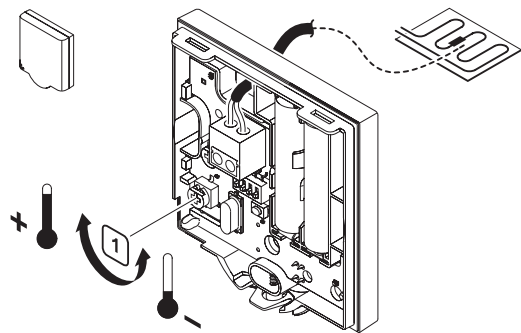
It is not possible to set min/max temperatures using the Thermostat Public T-53.

### 3.4 Floor sensor settings

If your system includes a floor sensor, a potentiometer fitted behind the cover of the Thermostat Public T-53 allows you to adjust the minimum or maximum temperature settings for the floor.

The floor sensor can be used for maximum or minimum limitation of the floor temperature, regardless of the room temperature.

The maximum limitation can be used, for example, to prevent a sensitive floor covering from exposure to a too high temperature where there is a high heat demand. The minimum limitation can be used, for example, to keep a tile floor warm even when there is no general demand for heat supply to the room.



- 1 Select the required temperature using the potentiometer



See controller Installation Manual for more information.

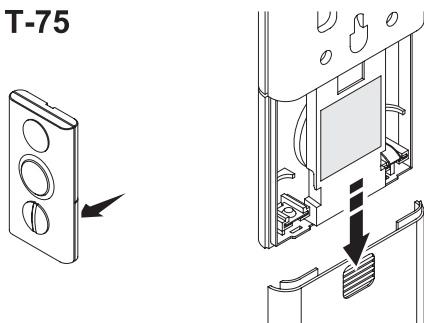
### 3.5 Thermostat battery replacement



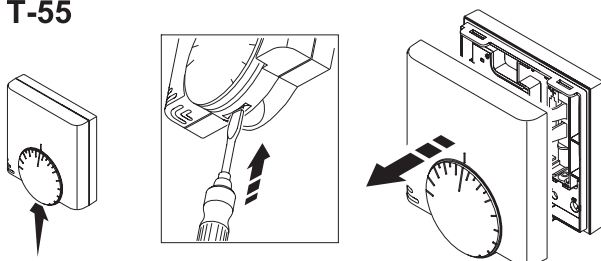
Type of batteries for the thermostats: 2x Alkaline AAA 1.5V. Respect the polarity.

#### Opening the battery compartment or the cover

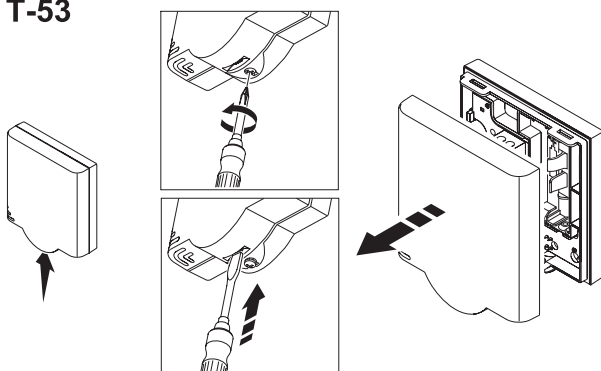
##### T-75



##### T-55

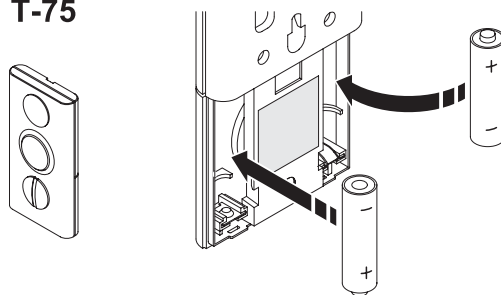


##### T-53

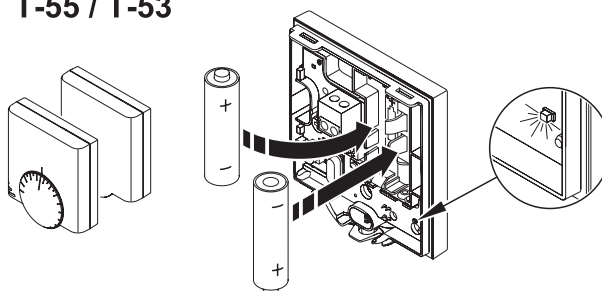


#### Installing the batteries

##### T-75

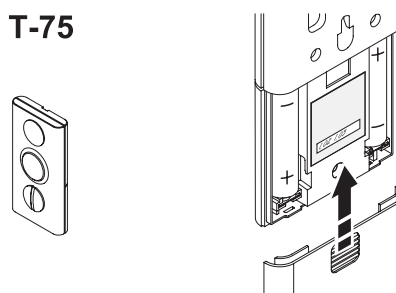


##### T-55 / T-53

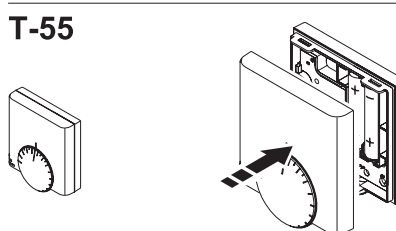


#### Closing the thermostat

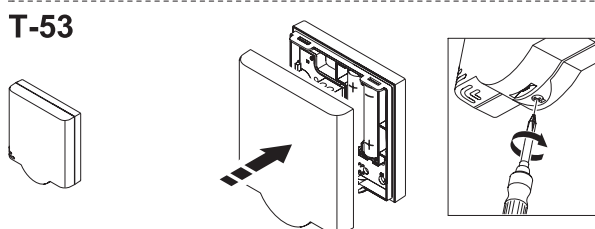
##### T-75



##### T-55



##### T-53



## 4. System maintenance

Regular checks on your system components are recommended in order to optimize performance. This system requires no maintenance, but every few years the batteries are to be changed.



You have the possibility of centralizing and optimizing the management of the system by connecting an interface to the controller. The interface allows you to display and update easier and faster the operating parameters of the system. The interface also displays the causes of alarms and facilitates diagnosis.

### Thermostat batteries:

The thermostats are powered by batteries. Discharged batteries must be replaced. See: "5.2 Alarms", page: 11.

### Controller:

The Power LED of the controller is always lit up. When it blinks, this means that an alarm has been triggered. Open the controller cover. The LED of the channel from which the alarm originated is blinking rapidly. See: "5.2 Alarms", page: 11.

### Automatic exercise function:

The system is fitted with an automatic exercise function. Set every 6 days +/- 24 hours, this function consists of a test-run designed to prevent the pump and actuators from seizing up, when they have not been activated since the last test.



If your system is fitted with an interface, the exercise function may be activated at any time.



Use a dry soft cloth to clean the Control System and all its components. Do not use any detergent.

## 5. Diagnosis and resolution of alarms and faults

### 5.1 Normal system operating conditions:

#### 5.1.1 Controller

The Power LED of the controller is lit up. All the channel LEDs are off if there is no demand for heating or cooling. The LEDs light up when the corresponding actuators are activated. While on stand-by, waiting for the actuators to be activated, the LEDs flash.

#### 5.1.2 Thermostat Display T-75

The thermostat displays the room temperature.

#### 5.1.3 Thermostat T-55 and Thermostat Public T-53

LED blinks one time only with each transmission.

### 5.2 Alarms

#### WARNING



Note that some actions, e.g. actions involving 230V, wiring, etc., are to be performed by a qualified person.

The errors are indicated on the controller when the power LED blinks. The errors could be:

- Loss of radio transmission from a thermostat for more than 3 hours.
- Low batteries on a thermostat.
- Short circuited actuator.
- Cover Alarm.

#### To contact your installer:

See installation report in the fold-out to find the contact information of the installer.

Please prepare the following information before contacting an installer:

- Installation report.
- Drawings of the underfloor heating system (if available).



If an interface is fitted to the system, alarms can be readily displayed without the need to take the controller apart. The interface displays clearly and accurately the causes of the various alarms.

### 5.2.1 Controller




A blinking mains indicator indicates an alarm/an error message.

The power LED of the controller always remains lit up. If it blinks, this means a problem has occurred. Please consult your Installation Report, which can be found in the Installation Manual.

Open the controller cover and identify the LED(s) that are flickering in order to assess from which thermostat the alarm is originating.

### 5.2.2 Thermostat Display T-75

Battery Alarm:

Replace the batteries of the Thermostat when the symbol  appears.

### 5.2.3 Thermostat T-55 and Thermostat Public T-53

Battery Alarm:

Replace the batteries of the thermostat when the red LED inside the thermostat blinks twice. (During a heat or cool demand)

Cover Alarm:

The Thermostat Public T-53 includes a switch to warn in case of opening the cover. The status of the switch is transmitted by radio waves. Power LED and concerned channel LED blink.

## 5.3 Erasing the alarms

Each LED switches off as the corresponding problem is solved, and the Power LED goes back to its normal state (i.e. always on).



## 5.4 List of possible alarms and solutions

Component	Indication	Causes	Solutions	Note
Controller C-55	power LED and thermostat LED's in the controller for connected channels flash	antenna out of position or wire disconnected	mount antenna in correct position with wire correctly connected	
	power LED and concerned channel LED flash	short-circuit on a connected actuator	check the wiring of the actuators, replace the actuator	
		short-circuit on the actuator terminal/wiring error	<ul style="list-style-type: none"> <li>■ use another channel (if an unused one is remaining)</li> <li>■ for replacement of the controller, see Installation manual</li> </ul>	
Thermostat Display T-75	battery icon displayed	the thermostat batteries are discharged	replace the batteries see "3.5 Thermostat battery replacement"	
	the display is off	batteries totally dead or wrong type of battery used		
		batteries mounted upside down (reversed polarity)	mount batteries correctly	
	no radio transmission icon displayed	thermostat is out of the correct position	move the thermostat	
	radio transmission icon is displayed but signals are received only if the thermostat is close to the antenna	transmitter working but with reduced signal intensity	<ul style="list-style-type: none"> <li>■ force the thermostat to transmit by changing the temperature set point</li> <li>■ replace the thermostat</li> <li>■ for info how to delete the assignment of the old thermostat and replace it with the new one, see Installation Manual</li> </ul>	
		new installations in the house, shielding radio signals (e.g. drying cupboard, safe, metallic door)	try to find a new position for thermostat and/or antenna (or, if possible, the shielding object)	
Thermostat T-55 and Thermostat Public T-53	LED blinks twice	the thermostat batteries are discharged	replace the batteries see "3.5 Thermostat battery replacement"	
	LED no blinks one time only	batteries totally dead or wrong type of battery used		
		batteries mounted upside down (reversed polarity)	mount batteries correctly	
	in transmission LED no blinks one time	thermostat is out of the correct position	move the thermostat	
		transmitter broken in thermostat	<ul style="list-style-type: none"> <li>■ force the thermostat to transmit by changing the temperature set point</li> <li>■ replace the thermostat</li> <li>■ for info how to delete the assignment of the old thermostat and replace it with the new one, see Installation Manual</li> </ul>	
	power LED and concerned channel LED flash in the controller	the cover of thermostat is opened (Thermostat Public T-53)	check the settings and put back in place the cover of the thermostat	

## 5.5 List of possible failures and solutions

Failure	Indication	Causes	Solutions	Note
room too cold (or too warm in Cooling mode) <sup>1</sup>	<ul style="list-style-type: none"> <li>■ press + or – key to display the temperature set point on the thermostat</li> <li>■ the temperature set point is also displayed in the room information menu</li> </ul>	thermostat setting too low	change temperature set point	use max and min limitation to protect system from consequences of unreasonable temperature settings
	temperature displayed on the thermostat drops after a while when the thermostat is moved	thermostat e.g. influenced by a heat source	change the location of the thermostat	
	<ul style="list-style-type: none"> <li>■ see installation report and the controller/channel numbering under thermostat batteries cover</li> <li>■ force thermostat to transmit and check so if the corresponding LED's are flashing</li> </ul>	the thermostat of single rooms were mixed up	place the thermostat in the room supplied by the loops controlled by the thermostat	
	the white indication can not be seen in the indicator window of the actuator	actuator does not open	replace the actuator	
room too warm (or too cold in cooling mode) <sup>1</sup>	the corresponding loop is warm even after a long period without heat call	actuator does not close	<ul style="list-style-type: none"> <li>■ check that the actuator is correctly mounted</li> <li>■ replace the actuator</li> </ul>	
the floor is cold <sup>2</sup>	<ul style="list-style-type: none"> <li>■ no heat demand (from underfloor heating system)</li> <li>■ the room is heated by another heat source</li> </ul>	room temperature OK, but the floor is cold		

<sup>1</sup>: To find out if a problem is caused by the supply system or the control system: loosen the actuators from the manifold, wait some minutes and check if the flow pipe of the floor heating loop warms up. After some more minutes, the return pipe also should warm up. If the pipes do not warm up, the trouble lies in the warm water supply, if the loops warm up, the cause could be the room control system.

<sup>2</sup>: Supply system defect: no warm water in manifold. Check boiler and circulation pump.

## 6. Disposal of the product

The Uponor Control System is made up of various recyclable components. Uponor would be grateful if you could sort out these components (batteries, plastics, electric or electronic parts) and dispose of them at a suitable recycling centre.